THE MYRIOPOD FAUNA OF THE BERMUDA ISLANDS, WITH NOTES ON VARIATION IN SCUTIGERA.

Ralph V. Chamberlin.

The present paper is based upon a study of several lots of chilopods and diplopods from the Bermudas, belonging chiefly to the Museum of Comparative Zoology, at Cambridge, Mass., and to the United States National Museum, at Washington, D. C. The collections embrace material secured by Prof. J. H. Comstock, in 1903, the Yale Expedition to the Bermudas in 1898, Prof. A. E. Verrill in 1901, Mr. Owen Bryant and Dr. Thomas Barbour in 1903, Dr. R. W. Glaser, Dr. G. B. Goode, and material from the Bermuda Biological Station for Research collected by Prof. E. L. Mark in 1903, and Dr. W. L. Crozier in 1917 and 1918. An examination of this material has brought to light all species previously recorded and six species not previously known to occur upon the islands, bringing the total of chilopods and diplopods together to fifteen species. These forms are as follows:

DIPLOPODA.

Julus moreleti Lucas.
Julus bermudanus, sp. nov.
Julus nesophilus, sp. nov.
Rhinocricus monilicornis (Porath).
Rhinocricus ectus, sp. nov.
Microspirobolus excursans, sp. nov.
Orthomorpha coarctata (Saussure).
Strongylosoma guerinii (Gervais).

CHILOPODA.

Scolopendra subspinipes Leach.
Mecistocephalus maxillaris Gervais.
Hydroschendyla submarina (Grube).
Lamyctinus cæculus (Brolemann).
Lithobius provocator (Pocock).
Tidabius navigans (Chamberlin).
Scutigera coleoptrata (Linné).

Of these species three of the chilopods and one of the diplopods occur in the warmer parts of the entire world, these tropicopolitan forms being *Orthomorpha coarctata*, *Scolopendra subspinipes*, *Mecistocephalus maxillaris*, and *Lamyctinus caeculus*. Of the remaining species it is rather surprising to find that only one, namely *Rhinocricus monilicornis*, occurs also in the West Indies, though it is quite possible that the other Rhinocricus and the Microspirobolus may with further exploration be found there, the present evidence being, however, that they are indigenous. In fact, four out of the six genera represented by the remaining species—Lithobius, Tidabius, Hydroschendyla

and Julus—do not occur in the West Indies, and the presence of Scutigera in the restricted sense is doubtful. The other genus, Strongylosoma, is tropicopolitan.

Of the species found upon the Bermudas, four occur also in southwestern Europe, inclusive of the Azores, these being *Julus moreleti, Strongylosoma guerinii, Hydroschendyla submarina* and *Scutigera coleoptrata.* The Scutigera appears also to be the same species as the common North American form. In addition, there is in North America a widespread species, *Tidabius tivius* Chamb., which is exceedingly close to and perhaps only varietally distinct from the Bermudan *Tidabius navigans.* Omitting this form, there remain five species apparently indigenous, two of which have West Indian affinities and the others of which must have had European or North American ancestry, but most probably the former. Omitting the four tropicopolitan species, eight of the eleven remaining species are in their affinities European and North American, the other three West Indian.

DIPLOPODA.

JULIDÆ.

Julus moreleti Lucas.

In Arthur Morelet's Iles Açores, Paris, 1860, p. 96.

Julus moreleti Porath, Öfvers, af Vet. Akad. Förh., 1870, 27, p: 820, pl. 10, figs. 9, 10.
Julus moreleti Bollman, Proc. Acad. Sci. Phil., 1889, p. 128.
Julus moreleti Pocock, Ann. and Mag. Nat. Hist., 1893, ser. 6, 11, p. 123.
Julus moreleti Chamberlin, Proc. Acad. Sci. Phil., 1904, p. 653.

This species was originally described from the Azores. It is also found in the Madeira Islands. It is abundant on the Bermudas.

Localities: Bermuda (O. Bryant, 1903; J. H. Comstock, 1893; Wm. W. Barbour, A. E. Verrill, 1901; Yale Exped.,1898); Flatts Inlet (O. Bryant, 25 June, 1903); Harrington Sound, (Bermuda Biol. Sta., R. W. Glaser); Paynter's Vale (Bermuda Biol. Sta., E. L. Mark, April, 1903); Tucker's Id. (A. E. Verrill, 3 May, 1901); Point Shares (Bermuda Biological Station for Research, W. L. Crozier coll., 5 Oct., 1917).

Julus bermudanus sp. nov. (Figs. 1 and 2).

Light brown, with a tendency toward light chestnut. Lacking a middorsal dark line and also dark lines along the sides in the types, or some of the repugnatorial glands showing weakly as darker spots. On each somite a darker transverse band across dorsum in front of suture, on dorsum in front of suture an included narrower band of lighter spots separated by a network of dark lines; a similar areolation below each repugnatorial pore. Collum with a dark band across anterior border, this narrowing down each side; plate elsewhere with network of fine dark lines over paler ground. Anal tergite and valves dusky. A darker band over and between eyes.

Vertex of head lacking setigerous foveolæ; crossed by a fine but distinct sulcus. Each eye consisting of twenty to twenty-two ocelli in five series: e. g., 6, 5, 4, 3, 2 and 6, 5, 5, 3, 2. Antennæ in length about equalling the width of the body.

Collum angularly narrowed down each side, narrowly rounded below; just above each lateral end with two or three striæ.

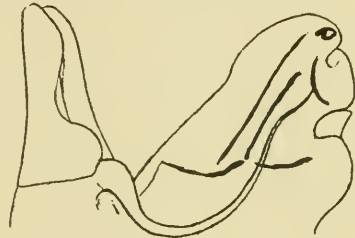FIG. 1   FIG. 2

Fig. 1. Anterior gonopods of *Julus bermudanus* sp. nov., cephalic aspect.
Fig. 2. Mesal aspect of left gonopods of *Julus bermudanus*, sp. nov.

Second and next few segments with striæ back of suture below level of pores, none on dorsum. Farther caudad, however, the striæ are distinct entirely across dorsum. Striæ deeply impressed and extending to or nearly to the caudal edge, the smooth border at most very narrow. Prozonites smooth and shining. Suture distinct, straight, not curved or angulate at level of pore. Pores in contact with sutures on caudal side of which they lie.

Anal tergite rounded behind, equalling or slightly exceeded by the valves. Anal valves mesally slightly margined, a distinct sulcus setting off a narrow but only weakly elevated mesal rim on each.

In the male the cardo of mandibles produced in a laminate form ventrad or caudoventrad, the edge entire. First legs chitinous, strongly uncate. Gonopods concealed. Gonopods having the general arrangement of those of *luscus;* but anterior pair larger, with distal edge less oblique and the posterior pair more conspicuously different and the relations of flagellum also different. (See Figs 1 and 2).

Number of segments ($\male$), 40–41. The last three or four segments apodous.

Length, near 12 mm.; width, 1.1–1.2 mm.

Locality: Bermuda (J. H. Comstock, 1903, one male, type, author's coll., A. E. Verrill, 1901, one male, paratype, U. S. N. M.)

This species falls in a group with the European *J. luscus* Meinert, *J. londinensis* Leach, *J. britannicus* Verhoeff, etc.

Julus nesophilus sp. nov.

Body in general fuscous, annulate with pale. Collum with a dark band behind a pale anterior border, elsewhere areolate with light. Head with a dark band across and between eyes, the vertex with numerous small light dots in a darker network. Body glabrous.

Head with no setigerous foveolæ on vertex. The usual four foveolæ on clypeus. Antennæ slender and rather shorter than the width of the body. Eyes black, transversely and rather narrowly elliptic. Ocelli about forty-eight in near ten oblique series, e. g., 2, 4, 5, 6, 6, 6, 7, 6, 4, 2.

Collum exceeded by the second segment, at sides rather widely rounded; marked below on each side with three distinct striæ of which the second continues along anterior border as the margining sulcus; above these the caudal border is crossed by a number of shorter striæ, the series extending entirely across plate.

Second segment on each side a little extended forward beneath the collum; strongly striate beneath and part way up the sides, weaker striæ also existing entirely across dorsum. On third and fourth segments the striæ are a little deeper and on subsequent ones strongly marked entirely about the metazonites, the prozonites remaining smooth. The striæ extend to or nearly to the caudal edge, the smooth border, where at all evident, being very narrow. Each repugnatorial pore on the anterior and median segments lies immediately in front of the general level of the segmental suture, but the latter curves forward about it, embracing it closely, excepting on the caudal side. In the more caudal segments the pore is relatively farther caudad and the suture curves more and more gently, becoming more open and not embracing the pore.

Anal tergite not at all caudate or produced, posteriorly obtusely subangulate; a little exceeded by the valves. Mesal borders of anal valves moderately protruding, but not distinctly margined. Anal scale subtriangular, narrowly rounded behind, smooth.

Number of segments (♀), forty-two.

Length, 23 mm.; width, 2.4 mm.

Locality: Harrington Sound. One female (R. W. Glaser). M. C. Z.

I have been unable to identify this with any European or North American species. In the absence of knowledge of the male, however, nothing can be safely asserted as to its more immediate affinities.

Rhinocricus monilicornis (Porath).

Spirobolus monilicornis Porath, Bih. Svensk. vet.-Akad. Handl., 1876, 4, no. 7, p. 31.
Spirobolus heilprini Bollman, Proc. Acad. Sci., Phil., 1889, p. 127.
Spirobolus monilicornis Pocock, Ann. Mag. Nat. Hist., 1893, ser. 6, 11, p. 123.

This species appears to be well distributed in South America and the West Indies and is obviously common on the Bermudas.

Localities: Bermuda (Yale Exped., 1898); Hanging Bay (O. Bryant, 27 June, 1903); Harrington Sound (R. W. Glaser); Hungry Bay (A. E. Verrill, April, 1901).

Rhinocricus ectus sp. nov.

Black, each segment with a yellow or ferruginous annulus embracing the caudal half of metazonite or but little more, though often widening down the sides. Collum black, excepting a narrow, pale caudal border on the former. Legs brick red.

Sulcus across vertex distinct, widely interrupted in the frontal region where the head is depressed, the median sulcus evident again across lower part of clypeus. Antennæ short; sensory cones numerous.

Collum rounded below. Margined along anteroventral corner, otherwise smooth and non-striate, or with but a single weak stria just above caudal portion of margining one; exceeded by the second tergite, which extends forward beneath it and bends down a little at anterior edge; flattened beneath where alone it is striate.

Segmental sulcus sharply impressed and distinct throughout. In front of it always a second sulcus which is distinct entirely across dorsum and ordinarily takes its origin a little above level of pore, where it bends rectangularly back toward primary sulcus. Below it is a stria which extends obliquely caudoventrad below pore, a series of other similar fine oblique stries following below it. Pore just in front of the primary sulcus which is gently curved opposite it. Metazonites strongly striate below middle of sides, the series ending some distance below level of pores. Scobina extending back to or near the thirty-fifth somite.

Anal tergite angulate behind, the angle caudally rounded; not caudate, exceeded by the valves. Valves mesally protruding, but not margined or so sharply elevated as in *monilicornis*.

Number of segments, forty-four or forty-five.

Length, 35 mm.–40 mm.; width, 3.5 mm.–4 mm.

Locality: Bermuda (M. C. Z. coll.)

The types of this species are two females. It appears to be close to *R. consociatus* Pocock of Union Id., W. I.; but lack of males of the present form and of specimens of *consociatus* for comparison makes definite conclusions as to precise relationship

impracticable.   The Bermudan form is more robust, having a width of 4 mm. as against 3 mm., the legs are brick-red instead of lurid, and the pale border of the anal tergite is narrower. More important, the anal tergite of *consociatus* is said, in Pocock's key (Jour. Linn. Soc., 1893, 24, p. 487, etc.) to be produced, though scarcely exceeding the valves.   It is not caudate in the present form.

<center>SPIROBOLELLIDÆ.</center>

Microspirobolus excursans sp. nov.

Body in general of a light brown color with dorsum showing a tendency toward a weakly reddish tinge.   Typically a darker brown band along each side at level of pores embracing a series of black spots formed by the repugnatorial glands which are always conspicuous.   A rather faint middorsal dark line.   Each ordinary segment crossed above by a pale band at or in front of the constriction, this bending back at middle where divided by middorsal dark line, sometimes embracing most of prozonite.   Legs pale brown or fulvous.   Collum without dark markings.   Anal segment also light, or sometimes more or less dusky.

Head smooth.   A fine sulcus across vertex, ending in a small impressed foveola at upper level of eyes.   Clypeal setigerous foveolæ 4+4, the two outermost on each side more widely removed.   Eyes subtriangular with apex toward base of antenna and the sides rounded. Ocelli distinct, about thirty-one in number, arranged typically in five rather irregular, subvertical series, e. g., 5, 6, 7, 9, 4.   Antennæ very short, gradually enlarged to sixth joint, fitting in a groove in head and mandible on each side.

Collum projecting forward over base of head.   Widely rounded below, the anterior corner subrectangularly rounded, the posterior more oblique, the lower edge somewhat flattened or even slightly indented. Margined below and up front as far as level of eyes, otherwise non-striate and smooth.

The following segments each have the metazonite obviously considerably elevated above level of prozonite, the segment more or less constricted or furrowed about middle, especially laterally.   Pore well removed back of furrow, lying half way to the caudal edge from the furrow.   Deeply longitudinally striate beneath; laterally with curved striæ on prozonite in and just back of furrow up to level of pore and fewer more straight striæ in corresponding place on metazonite.   Dorsally the prozonite is characteristically marked with a network of impressed lines, outlining hexagonal areas, the areas decreasing in size forward from furrow.   Metazonite wholly smooth dorsally.

Anal tergite rounded behind, not at all projecting beyond valves. Anal scale transversely narrowly elongate, the caudal edge nearly straight.

Number of segments, thirty-five to forty, mostly thirty-seven or thirty-eight.

Length, near 18 mm.; width, to 2 mm.   Male more slender than female.

Locality: Bermuda. Point Shares. Several specimens taken under rotten wood (Bermuda Biol. Sta. for Research, W. L. Crozier coll., 5 Oct., 1917). In M. C. Z. coll.

No adult male is represented, so the reference to Microspirobolus is in some degree tentative. It seems to conform so far as may be judged from females, which much resemble those of West Indian species.

STRONGYLOSOMIDÆ.

Strongylosoma guerinii (Gervais).

Polydesmus Guerinii, Ann. Soc. Ent. France, 1836, p. 686.
Strongylosoma Guerinii Gervais, Ons. Apt., 1847, 4, p. 116.
Strongylosoma Guerinii Pocock, Ann. and Mag. Nat. Hist., 1893, ser. 6, 11, p. 116.

In the collection of the U. S. Nat. Mus. is a female of this species taken on Bermuda by G. B. Goode. It was also in material collected on the islands by the Challenger Exped. (Pocock, Op. cit.) This species is common on the eastern side of the Atlantic in the Azores, Madeira, Spain, Portugal, Teneriffe, Algeria, Tunis, and Kameroon.

Orthomorpha coarctata (Saussure).

Polydesmus coarctatus Saussure, Mem. Soc. phys. Geneve, 1860, p. 39, fig. 18.
Strongylosoma coarctatum Pocock, Ann. and Mag. Nat. Hist., 1893, ser. 6, p. 123.

This species now has a tropicopolitan distribution and is one of the millipedes most frequently met with on tropical islands everywhere. Pocock records it from Bermuda (Op. cit.), and I have examined two specimens from the Bermuda Biological Station for Research, collected by W. L. Crozier at Point Shares, 5 Oct., 1917, where they were found under rotten wood.

CHILOPODA.

SCOLOPENDRIDÆ.

Scolopendra subspinipes Leach.

Trans. Linn. Soc., London, 1814, 11, p. 383.
Scolopendra subspinipes Pocock, Ann. and Mag. Nat. Hist., 1893, ser. 6, 11, p. 123.

This large centipede is found commonly throughout the warmer parts of the earth, excepting the Mediterreanean region. Its centre of distribution, however, would seem undoubtedly to be the East Indian region, where it is most abundant and presents its greatest variations.

Localities: Bermuda Id. (south side of Id., O. Bryant, 21 Aug., 1903; E. L. Mark, April, 1890; U. S. N. M. Coll.; no other data). Tucker's Id. (E. L. Mark, 1 Aug., 1907).

MECISTOCEPHALIDÆ.

Mecistocephalus maxillaris (Gervais).

Geophilus maxillaris Gervais, Ann. Sci. Nat., ser. 2, 1837, 7, p. 52.
Mecistocephalus guildingii Newport, Trans. Linn. Soc. London, 1845, 19. p. 429.
Mecostocephalus guildingii Bollman, Proc. Acad. Sci. Phil. 1889, p. 129.

A tropicopolitan species, though commonly occurring rather sparsely. It is well known, e. g., from South America, West Indies, Hawaii, Samoa, Philippines, New Guinea, India and Africa. It also sometimes occurs in hothouses in temperate regions, as in Europe and North America (Washington, D. C.)

Localities: Bermuda Id. (South side, O. Bryant, 21 Aug., 1903); Harrington Sd. (R. W. Glaser); Dyer Id. (15 June, 1918, W. L. Crozier); Waterloo (A. E. Verrill, April., 1901).

SCHENDYLIDÆ.

Hydroschendyla submarina (Grube).

(Pl. XXII, Figs. 1 to 5)

Geophilus (Schendyla) submarinus Grube, Abh. Schles. Ges. vaterl. Cultur, Breslau, 1869, p. 82.
Hydroschendyla submarina Brölemann and Ribaut, Nouv. Archiv du Mus. d'Hist. Nat., ser. 5, 4, p. 137, pl. 7, figs. 110-118.

It is a matter of considerable interest to be able to add to the known chilopod fauna of the Bermudas this European marine geophiloid. The form was previously known to occur on the Mediterreanean and Atlantic coasts of France, the coasts of England (Jersey, Plymouth) and Ireland (Galway), and northward to Denmark and Sweden. It has also been recorded from Italy (Portici, Berlese, 1882); but there is some doubt as to the correctness of the identification in this case. Grube (Op. cit., p. 82–83) found it at St. Malo and Roscoff often in large numbers under stones and in fissures covered at high tide. A male of this species was taken by O. Bryant on the Bermudas at Hungry Bay (10 July, 1903), where it was "found under a stone nearly at low tide mark." I have examined also a female taken at Port Royal (25 June, 1918) in a similar location by Dr. W. L. Crozier, who has supplied me with the following field notes on the form." The intertidal form lives (a) around the

edges of eroded, flat stones; (b) in isolated and much honey-combed blocks of limestone; in either case about nine inches below mean high water.   The rock, porous aeolian limestone, or beach rock, is much eroded.   The situation is usually muddy (i. e., deposits of silt, calcareous, on the rock).   The centipede comes very near to the surface of the rock, sticks its head out into the open, and is even seen running over the moist surface of shaded stones.   The animals are not plentiful, but I have seen them at Flatts Inlet, at Port Royal, Great Sound, and at Dyer Id.   The rocks inhabited by them are frequently found in little coves, moderately shaded by overhanging ledges.   *Onchidium floridanum* lives in the same situations and sometimes uses the same cavities.   The centipede eats leodicids, in five instances I have noted, by biting into the side of the creature, licking up the juices and creeping off out of sight with one of the fragments into which the worm autotomises.   The centipede, except for color, looks not very unlike the leodicids, which occur plentifully in similar situations, though the distribution of the two types is not coincident.   As I remember, Dr. Treadwell found none of the centipedes in all his rock-splitting operations after worms, although he was more or less on the lookout for them.   It creeps much like an annelid, the body thrown into waves.''

It may be mentioned that the closely allied *Pectiniunguis americanus* also seems to have a strictly littoral habitat, occurring under sea-weed, drift-wood, etc., on the coasts of the Gulf of Mexico, including Florida, and on the coasts of Lower California.   Another geophiloid of a different family, *Linotaenia maritima* (Leach), seems similarly to have a littoral habitat. Its distribution in Europe is nearly the same as that of *Hydroschendyla submarina*   Its habits are indicated in the following note by R. I. Pocock.*   ''Great, therefore, was my astonishment, when, turning over the line of seaweed marking the high spring-tide, to find specimens of all sizes swarming amongst the slimy decaying fronds and wriggling away into darkness in company with hosts of scuttling woodlice and hopping sand-shrimps; while here and there was a cluster of them feeding upon the remains of one of the crustaceans.''   It is significant to note that the geophiloids in general seem to have a strikingly

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* Marine Centipede in Somerset, Zoologist, 1900, ser. 4, 4, p. 484.

greater power of resistance to prolonged submersion in fresh as well as in sea-water than other chilopods, such as scolopendrids, as has been experimentally demonstrated by Plateau.*

After examining only the male of this form from the Bermudas, I was inclined to consider it as distinct from the European species; but further study of a female in comparison with one from Banyuls-sur-Mer, France, kindly sent to me by Dr. Brölemann, shows the Bermudan and European forms to be undoubtedly identical. The male and female from the Bermudas have respectively forty-seven and forty-nine pairs of legs, the numbers most frequent in European specimens, and measure 32 and 20 mm. in length. They are yellow, excepting the end regions which are ferruginous. Structurally they agree in general with the exhaustive description given by Brölemann and Ribaut (Opp. cit.). In this description no mention is made of definite chitinous pockets in a few of the anterior plates; but the specimens agree in showing these. The Bermudan male, cleared and mounted, shows pronounced and strongly chitinized infoldings, or pockets, in the anterior edges of the ninth to thirteenth sternites, with a much shallower one on the eighth and fourteenth. The prebasal plate in the male is covered; but this is probably due to shrinkage in the alcohol, as it is exposed in the normal manner in the female.

LITHOBIIDÆ.

Lithobius provocator Pocock.

Ann. and Mag. Nat. Hist., 1891, ser. 6, 8, p. 152.

Lithobius provocator Pocock, ibid., 1893, 11, p. 122.
Lithobius bermudensis Pocock, ibid., 1893, 11, p. 126.
Lithobius provocator Chamberlin, Proc. Acad. Sci. Phil., 1904, p. 653.

Color varying from light to deep brown, often showing a median longitudinal pale stripe, and the head with first and last one or two plates commonly more reddish, chestnut to mahogany. Prosternum and prehensors brown, the latter rufous distally. Antennæ brown to mahogany, mostly nearly uniform. Posterior legs concolorous with dorsum, uniform or with last one or two articles paler.

Head subcordate, widest at or a little in front of marginal breaks. A little wider than long (25 x 24). Hairs short and few. Punctæ weak and scattered. Antennæ with articles thirty-seven to fifty-eight in number, forty-six being frequent; reaching seventh or eighth segment.

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* Les Myriopodes marins et la Resistance des Arthropodes a respiration aerieen a la submersion, Jour. de l'Anat. et Physiol, 1890, 26, p. 236-269.

Ocelli fourteen to twenty-five, in four or five series: e. g., 1+4, 4, 3, 2; 1+5, 5, 4, 3; 1+5, 5, 4, 4, 3; 1+6, 5, 5, 5, 3.	Single ocellus suboval, much largest, well separated from the others.	Ocelli of most dorsal row largest, the others decreasing gradually and usually uniformly ventrad.	Organ of Tomosvary on ventral surface ventrocephalad of eye-patch, in size about equalling one of the smaller ocelli.

Prosternum 1.73± times wider than long.	Distance between chitinous spots not quite twice the width at level of mesal incision or interval; 2.23± times the dental line.	Teeth 4+4 to 8+8, mostly 5+5 or 6+6 and frequently 5+6, a small extra tooth appearing in the diastema which normally separates the outermost tooth on each side from the others, or sometimes two, 6+8, the odd tooth or teeth most often noted on the right side.	Teeth distally rounded, each commonly appearing to be separately a little elevated.	Alternate teeth often reduced.	Ectal spine long and acute, truly spiniform, situated just back of the diastema on each side.	When the larger numbers of teeth are present, one or more commonly appear in the diastema, thus apparently obliterating it, but the spine always retains the normal position.

Posterior dorsal plates under a lens commonly appearing tuberculate or rugose, the anterior ones smoother.	Posterior angles of ninth, eleventh and thirteenth plates strongly produced.	Widths of head and of first, third, eighth, tenth and twelfth plates to each other nearly as 35 : 35 : 34 : 35 : 35 : 35, the sides being nearly parallel over much of length.	A specimen 24 mm. long has the tenth plate 3.5 mm. wide, the body thus only 6.8 times longer than wide in this case.

Coxal pores transversely elongate, from elliptic to oblong or key-hole shaped: 5, 7, 7, 5 to 7, 9, 9, 7, other arrangements noted being 6, 8, 8, 6 and 7, 8, 8, 7.	Sometimes two small pores appear side by side in the most proximal position.

Spines of first legs, $\dfrac{0, 0, 3, 2, 1}{0, 0, 2, 3, 2}$; of second to tenth, inclusive, $\dfrac{0, 0, 3, 2, 2}{0, 0, 2, 3, 2}$; of the elevanth and twelfth, $\dfrac{0, 0, 3, 2, 2}{0, 0, 3, 3, 2}$; of the thirteenth $\dfrac{1, 0, 3, 2, 2}{0, 1, 3, 3, 2}$; of the fourteenth. $\dfrac{1, 0, 3, 1, 1}{0, 1, 3, 3, 2}$, claws 2, or a third one scarcely evident; of anal, $\dfrac{1, 0, 3, 1, 0}{0, 1, 3, 3, 1}$, claws 2.	Last three pairs of coxæ laterally armed.

Claws of female gonopods rather short, tripartite, the lobes short. Basal spines 2+2, rather long, of about equal width from base to beginning of the short, acuminate tip which occupies only about one-fourth of total length, the sides parallel or a little incurved.

Length, 18 to 27 mm.

Praematurus—Antennæ consisting of forty-one articles.	Each eye consisting of ten ocelli, thus, 1+4, 3, 2.

Prosternum with teeth 4+4 of which the outermost and innermost on each side are smaller than the others. The most mesal tooth on each side is, as usual, closer to the next tooth than the others are to each other, the intervals between the first and second and the second and third from the outside being large. Spine in normal position opposite interval between first and second teeth.

Coxal pores 5, 5, 5, 5, circular and subcircular.

Spines of first legs $\frac{0, 0, 2, 2, 1}{0, 0, 1, 2, 1}$; of the second $\frac{0, 0, 3, 2, 1}{0, 0, 2, 3, 2}$; of the third to seventh, $\frac{0, 0, 3, 2, 2}{0, 0, 2, 3, 2}$; of the eleventh, $\frac{0, 0, 3, 2, 2}{0, 0, 2, 3, 2}$; of the twelfth $\frac{1, 0, 3, 2, 2}{0, 0, 3, 3, 2}$; of the thirteenth, $\frac{1, 0, 3, 1, 2}{0, 1, 3, 3, 2}$; of the fourteenth, $\frac{1, 0, 3, 1, 1}{0, 1, 3, 3, 3}$; and of the anal, $\frac{1, 0, 3, 1, 0}{0, 1, 3, 3, 1}$. Last three coxæ laterally armed.

Claw of gonopods of female tripartite, the lobes acute, the median one much longest. Spines 2+2, acute, tapering from base, the inner one of each pair about two-thirds the length of the outer one.

Length, 12 to 14 mm.

Agenitalis II—Antennæ consisting of thirty articles of which the ultimate is long, equalling the three preceding ones taken together. Each eye composed of five ocelli arranged in two series: thus, 1+2, 2, the single ocellus oboval, but slightly largest, all well separated.

Prosternum with teeth 2+2, subacute, those of each pair well separated. Median interval semicircular. Spine near ectal corner on each side, straight.

Coxal pores circular 1 (2), 2, 2, 2.

Spines of first legs, $\frac{0, 0, 0, 1, 1}{0, 0, 0, 1, 1}$; of the second and third, $\frac{0, 0, 1, 1, 1}{0, 0, 0, 1, 1}$; of the fourth, $\frac{0, 0, 1, 1, 1}{0, 0(1), 1, 1}$; of the fifth, $\frac{0, 0, 1, 1, 1}{0, 0, 1, 1, 1}$; of the sixth, $\frac{0, 0, 1, 1, 1}{0, 0, 1, 2, 1}$; of the seventh, $\frac{0, 0, 2, 2, 1}{0, 0, 1, 2, 1}$; of the eighth and ninth, $\frac{0, 0, 2, 2, 2}{0, 0, 1, 2, 1}$; of the tenth, and eleventh, $\frac{0, 0, 3, 2, 2}{0, 0, 1, 2, 1}$ of the twelfth, $\frac{0, 0, 3, 1, 1}{0,0,2,2,2(1)}$; of the thirteenth, $\frac{1, 0, 3(1), 1, 1}{0, 0, 2, 2, 1(2)}$; of the fourteenth, $\frac{1, 0, 3, 1, 1}{0, 1, 3, 3, 1}$, claws two; of the anal, $\frac{1, 0, 3, 0(1), 0}{0, 1, 3, 2, 0}$, claws two.

The lateral spine of the anal coxæ is represented by a minute transparent point not at all developed on the others.

Length, cir. 7.6 mm.

Localities: Bermuda Id. (Yale Exped., 1898, A. E. Verrill, 1901, O. Bryant, J. H. Comstock); Flatts Inlet; Hamilton (T. Barbour, 1903); Tucker Id. (A. E. Verrill, 1901); Paynter's Vale (Bermuda Biol. Sta. for Research, E. L. Mark, 1903); Hungry Bay (O. Bryant); Harrington Sd. (Bermuda Biol. Sta. for Research, R. W. Glaser).

Evidently a very common species on the islands. Pocock's *Lithobius bermudensis* agrees so nearly with the praematurus stage of *provocator* that I regard them as the same. While in specimens of the length designated by Pocock the prosternal teeth are ordinarily 3+3 or 4+4, I have two individuals of the praematurus stage 12 mm. long in which the prosternal teeth are 2+2 and 2+3 respectively.

While in general appearance this species much resembles the common European and North American *Lithobius forficatus* Linné, Pocock's suggestion (1893, Loc. cit.) that it may not be a truly distinct form is not well founded. Aside from the presence of two claws on each anal leg and the lateral arming of the last three pairs of coxæ, an even more important difference is evident in the prosternum, where the position of the special spine mesad of the ectal tooth on each side distinguishes the Bermuda form not only from *forficatus*, but apparently also from other species of the genus in its more restricted sense. Correlated with this position of the spine is the normal presence of a diastema separating the outer tooth from the others, though this may often show one or more interpolated minor teeth.

SCUTIGERIDÆ.

Scutigera coleoptrata (Linne).

Scolopendra coleoptrata Syst. Nat., ed. 10, 1, 1758, p. 637.
Scutigera coleoptrata Pocock, Ann. and Mag. Nat. Hist., 1893, ser. 6, 11, p. 122, 124.
Scutigera forceps Verrill, Trans. Conn. Acad. Sci., 1902, 11, p. 843.

This house-centipede seems not to be uncommon on the main island where it occurs in houses and cellars, etc. Verrill also took a specimen at the old forts on Castle Id. Five specimens which I have had for examination, seem not to differ from *Scutigera coleoptrata* (Linné), a species occurring commonly also in the Azores, Madeiras and the western and more southern parts of Europe. On the other hand, the species seems to be also identical with the common North American form. At any rate it seems impossible to separate alcoholic material

from the three regions mentioned on the basis of any characters thus far pointed out. I cannot speak with confidence as to coloration as it may be present in the living animals. Certainly there can be no separation on the basis of the characters to which Verhoeff gives primary importance in his study of the genus in Europe,* such as the number and arrangement of the spinules on the fifth, sixth and seventh tergites, the number of articles in the first division of the antennæ (*flagellum primum*), the number of divisions in first and second tarsi and the number and arrangement of the "pegs" on the latter, and the number and arrangement of spinules on the several joints of the legs. In fact, the variation in these characters in such, often on the two sides of the same animal, that one cannot help feeling skeptical as to the validity of the species and subspecies established by Verhoeff in the place mentioned, since the characters are used in the key with rather narrow limits, and the material studied by him was not extensive.

The tabulations which follow are constructed to represent the variations found in the characters mentioned in several individuals from the Bermudas and from the United States in comparison with a standard one from Toulouse, France, sent me through the kindness of Dr. Brölemann. In the first table the plus sign in the first two columns in the case of each tergite is used to separate the number on the left side from that on the right. In the third column is given only the general total of spinules for the surface, exclusive of margins and saddle. In the second table, showing the number of articles in the first division of the antennæ and in the first and second tarsi, the plus sign is used to separate the number of articles in the first tarsus (always given first) from the number in the second. In the subsequent tabulations, giving the spinules of the legs, the plus sign where appearing under femur and tibia is used to separate the number of spines at the distal margin given after the sign, from the number appearing proximad of this in the position indicated. Under tarsus I the sign separates the number of spinules appearing on successive articles beginning with the first. Under tarsus II the numbers given represent the number of segments, counting from the most proximal, upon which pegs appear. Where in this column a dash appears, it

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* Über Scutigeriden, 5, Aufsatz, Zool. Auz., 1905, 19, p. 76.

indicates that pegs appear continuously on joints between those thus separated, inclusive; e. g., 11–13 means that a peg appears on each of the eleventh, twelfth and thirteenth articles.   In ascertaining the spinules of the legs the method was in general to clear and mount the legs in order, with anterior faces down. It was thought sufficient for the present purposes to count the spinules of dorsal and ventral lines, in the case of femur and tibia, and of those that appear on the intermediate caudal surface in the three lines of hair approximately caudodorsal, caudomesal and caudoventral in position, since the spinules of the anterior surface vary in similar degree.   Thus the abbreviations at the heads of the minor columns stand respectively for dorsal, ventral, caudodorsal, caudomesal and caudoventral.   ·

The lengths of the several individuals furnishing the data given in the several tables are as follows:

Bermuda a, 23 mm.	Boston a, 23 mm.
Bermuda b, 19 mm.	Boston b, 20 mm.
Bermuda c, 21 mm.	Boston c, 19 mm.
Bermuda d, 22 mm.	Boston d, 22 mm.
Bermuda e, 16 mm.	Beaufort, N. C., 20 mm.
France, 25 mm.	Texas, 25 mm.
Salem, Mass., 26 mm.	Washington, D. C., 17 mm.

TABLE I.

SPINULES OF DORSAL PLATES.

	PLATE V			PLATE VI			PLATE VII		
	Margin	Saddle	Other	Margin	Saddle	Other	Margin	Saddle	Other
Bermuda a...............	11+13	1+1	38	10+11	5+3	15	6+9	6+6	54
Bermuda b..............	9+15	4+2	34	16+16	5+5	45	2+3	5+6	30
Bermuda c...............	rubbed	rubbed	—	10+9	4+3	27	3+2	3+2	19
Bermuda e...............	7+6	3+2	36	6+4	4+4	41	0+0	4+3	15
France..................	16+15	4+2	32	14+16	6+6	41	4+5	6+5	34
Salem...................	17+13	6+9	46	17+12	9+8	65	7+6	6+5	51
Boston..................	19+19	6+4	53	18+17	4+4	57	3+2	2+5	34
Boston b.................	17+18	5+4	50	18+18	6+9	67	6+9	5+7	43
Boston c.................	18+18	1+4	35	11+13	3+5	31	2+3	2+3	25
Washington..............	19+13	5+6	32	15+16	4+4	22	4+6	2+5	21

TABLE 2A.

ARTICLES OF ANTENNA I AND OF TARSI OF LEGS I TO IV.

	I ANTENNA		LEG I		LEG II		LEG III		LEG IV	
	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.
Bermuda a	90	93	14+34	16+36	12+32	13+31	11+32	11+32	9+32	9+30
Bermuda b	107	97	—	—	—	—	—	—	—	—
Bermuda c	67	73	—	13+34	13+30	11+29	10+28	—	13+20	—
Bermuda d	93	88	—	—	—	—	—	—	—	—
Bermuda e	67	66	13+28	13+28	11+27	—	9+26	10+26	7+26	—
France	74	66	16+34	15+35	14+33	13+35	12+32	13+32	10+28	12+32
Salem	73	69	15+33	—	12+33	—	12+32	—	10+28	—
Boston a	99	—	—	—	—	—	—	—	—	—
Boston b	76	91	14+36	14+35	13+33	13+34	12+32	13+33	—	11+29
Boston c	74	81	—	—	—	—	—	—	—	—
Boston d	—	—	—	15+32	—	13+30	—	12+29	10+30	10+28
Beaufort	—	91	14+34	15+33	—	13+?	11+30	12+29	9+?	11+25
Texas	80	—	14+34	15+35	13+32	13+32	12+31	12+32	10+30	11+31
Washington	*	*	—	—	—	13+31	—	—	—	11+29

TABLE 2B.

ARTICLES OF TARSI OF LEGS V TO IX.

	LEG V		LEG VI		LEG VII		LEG VIII		LEG IX	
	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.	Rt	Lft.	Rt.	Lft.
Bermuda a	9+27	8+28	14+18	9+26	8+25	8+30	8+28	8+28	7+28	8+29
Bermuda c	10+28	—	—	7+26	8+26	7+27	7+29	—	—	7+26
Bermuda e	—	8+26	—	7+25	—	—	7+24	—	—	—
France	8+29	10+32	8+31	8+28	—	8+26	8+27	7+31	8+27	8+27
Salem	8+28	—	8+27	—	7+25	—	—	—	—	—
Boston b	8+30	8+32	9+29	8+29	8+?	8+31	8+29	7+29	8+30	8+31
Boston d	9+26	10+29	8+28	9+27	8+28	8+28	8+27	—	—	—
Beaufort	10+26	8+27	8+26	9+?	7+26	—	8+27	—	—	—
Texas	10+28	8+30	—	—	8+28	8+28	8+28	8+28	—	10+26
Washington	9+31	8+32	—	8+29	—	—	7+30	—	—	—

TABLE 2C.

ARTICLES OF TARSI OF LEGS X TO XIV.

	LEG X		LEG XI		LEG XII		LEG XIII		LEG XIV	
	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.	Rt.	Lft.
Bermuda a	8+28	8+29	7+29	9+?	8+28	8+29	9+?	7+24	9+32	9+33
Bermuda c	7+29	7+27	—	6+30	8+29	—	—	—	—	—
Bermuda e	6+26	—	7+27	11+27	—	7+?	—	—	—	—
France	8+28	8+27	9+30	9+31	—	—	—	9+33	9+38	9+36
Salem	8+29	—	—	7+29	8+29	—	8+32	—	—	—
Boston b	8+30	8+31	8+31	8+30	9+31	9+26	8+35	8+33	13+36	10+39
Boston d	—	—	—	—	—	—	—	—	—	—
Beaufort	—	—	7+29	—	—	—	—	—	—	—
Texas	8+30	8+30	8+28	—	—	—	9+34	10+34	—	10+?
Washington	—	8+31	—	8+30	—	—	—	8+32	—	—

TABLE 3A.

SPINULES OF FEMUR AND TIBIA OF LEG I.

		FEMUR					TIBIA				
		d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a	Rt.	0	0	0	0	0	0	0	0	0	2+1
	Lft.	0	0	0	0	0	0	0	0	0	2+1
Bermuda c	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
Bermuda e	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
France	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
Salem	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
Boston b.	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
Boston d.	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0
Beaufort.	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0+1	0
Texas	Rt.	0	0	0	0	0	0	0	0	0	0+1
	Lft.	0	0	0	0	0	0	0	0	0	0
Wash-ington	Rt.	0	0	0	0	0	0	0	0	0	0
	Lft.	0	0	0	0	0	0	0	0	0	0

TABLE 3B.

SPINULES OF METATARSUS AND OF TARSUS I, AND PEGS OF TARSUS II OF LEG I.

		METATARSUS			TARSUS I	TARSUS II
		d	v	cd		
Bermuda a	Rt	0	0	0	0	7, 9, 15, 17, 19, 23, 25, 27, 29
	Lft	0	0	0	0	9, 11, 13, 19, 21, 23, 25, 27, 29
Bermuda c	Rt	—	—	—	—	—
	Lft	0	0	0	0	14, 16, 18, 20, 22, 24, 26, 28
Bermuda e	Rt	0	0	0	0	9, 11, 13, 15, 17, 19, 21, 23
	Lft	0	0	0	0	11, 19, 21, 23
France	Rt	0	0	0	0	10, 12, 14, 16, 18, 20, 22
	Lft	0	0	0	0	15, 17, 19, 21, 23, 25, 27, 29
Salem	Rt	0	0	0	0	9, 11, 13, 17, 19, 21, 25, 27
	Lft	—	—	—	—	—
Boston b	Rt	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 24, 26, 28
	Lft	0	0	0	0	11, 13, 15, 17, 19, 21, 23, 25, 27
Boston d	Rt	—	—	—	—	—
	Lft	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 24, 26
Beaufort	Rt	0	0	0	0	10, 12—14, 16—18, 20, 22, 24, 26
	Lft	0	0	0	0	11, 13, 15, 17, 19, 21, 23, 25, 27
Texas	Rt	0	0	0	0	12, 14, 16, 18, 20, 22, 24, (26), 28
	Lft	0	0	0	0	11—13, 15, 17, 19, 21, 23, 25, 27, 29
Washington	Rt	—	—	—	—	—
	Lft	—	—	—	—	—

TABLE 4A.

SPINULES OF FEMUR AND TIBIA OF LEG II.

	FEMUR					TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a {Rt.	0	0	0	0	0	0	0	0	0	5+1
{Lft.	0	0	0	0	0	0	0	0	0	4+1
Bermuda c {Rt.	0	0	0	0	0	0	0	0	0	0
{Lft.	0	0	0	0	0	0	0	4	0	0
Bermuda e {Rt.	0	0	0	0	0	0	0	0	0	0
{Lft.	—	—	—	—	—	—	—	—	—	—
France..... {Rt.	0	0	0	0	0	0	0	0	0	2+1
{Lft.	0	0	0	0	2	0	0	0	0	2+1
Salem..... {Rt.	0	0	0	0	0	0	0	0	0	0+1
{Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.. {Rt.	0	0	0	0	1	0	0	0	0	3+0
{Lft.	0	0	0	0	2	0	0	0	0	2+1
Boston d.. {Rt.	—	—	—	—	—	—	—	—	—	—
{Lft.	0	0	0	0	0	0	0	0	0	0
Beaufort... {Rt.	—	—	—	—	—	—	—	—	—	—
{Lft.	0	0	0	0	0	0	0	0	0	2+1
Texas...... {Rt.	0	0	0	0	0	0	0	0	0	0+1
{Lft.	0	0	0	0	0	0	0	0	0	0+1
Wash- {Rt.	—	—	—	—	—	—	—	—	—	—
ington {Lft.	0	0	0	0	0	0	0	0	0	0

TABLE 4B.

SPINULES OF METATARSUS AND TARSUS I, AND PEGS OF TARSUS II OF LEG II.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a........ {Rt.......	0	0	0	0	10, 11, 13, 15, 17, 19, 21—24, 26
{Lft......	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 23, 26
Bermuda c........ {Rt.......	0	0	0	0	7, 9, 11, 14, 16, 18, 20, 22, 24, 26
{Lft......	0	0	0	0	15, 17—19, 21, 23
Bermuda e........ {Rt.......	0	0	0	0	10, 12, 14—16, 18, 20, 22
{Lft......	—	—	—	—	
France........... {Rt.......	0	0	0	0	8, 10, 12, 14, 16, 18, 20, 22, 24, 26
{Lft......	0	0	0	0	9, 11, 13, 15, 17, 19, 21, 23, 25
Salem........... {Rt.......	0	0	0	0	1, 11, 13, 14, 19, 21, 23, 25, 27
{Lft......	—	—	—	—	
Boston b.......... {Rt.......	0	0	0	0	6, 8, 10, 12, 14, 16, 18, 22, 24, 26
{Lft......	0	0	0	0	(10), 12—18, 20—22, 24
Boston d.......... {Rt.......	—	—	—	—	
{Lft......	0	0	0	0	10, 12, 14, 16—18, 20, 22, 24
Beaufort.......... {Rt......	—	—	—	—	—
{Lft......	0	0	0	0	—
Texas............ {Rt.......	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 24, 26
{Lft.....	0	0	0	0	8, 10, 12, 14, 16, 18, 20, 22, 24, 26
Washington....... {Rt.......	—	—	—	—	—
{Lft.....	0	0	0	0	11, 13, 15, 17, 19, 21, 23

TABLE 5A.

SPINULES OF FEMUR AND TIBIA OF LEG III.

	FEMUR					TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a { Rt.	0	0	0	0	0	0	0	0	2	5+1
{ Lft.	0	0	0	0	0	0	0	0	3	5+1
Bermuda c { Rt.	0	0	0	0	0	0	0	0	0	0
{ Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e { Rt.	0	0	0	0	0	0	0	0	0	0
{ Lft.	0	0	0	0	0	0	0	0	0	0
France..... { Rt.	0	0	0	0	3				1	4+1
{ Lft.	0	0	0	0	7			2	2	4+1
Salem...... { Rt.	0	0	0	0	0	0	0	0	2	2
{ Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.. { Rt.	0	0	0	0	7	0	0	0	4	5+1
{ Lft.	0	0	0	0	6	0	0	0	3	3+1
Boston d.. { Rt.	—	—	—	—	—	—	—	—	—	—
{ Lft.	0	0	0	0	5	0	0	1	0	3+1
Beaufort... { Rt.	0	0	0	0	4	0	0	1	3	5+1
{ Lft.	0	0	0	0	3	0	0	0	5	2+1
Texas...... { Rt.	0	0	0	0	0	2	0	1	1	2+1
{ Lft.	0	0	0˙	0	2+1	0	0	3	0	4+1
Wash- { Rt.	—	—	—	—	—	—	—	—	—	—
ington { Lft.	—	—	—	—	—	—	—	—	—	—

TABLE 5B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG III.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a........ { Rt.......	0	0	0	1	9, 11—13, 15—17, 19, 21
{ Lft......	0	0	0	1	10, 12, 14, 16, 18, 20, 22
Bermuda c........ { Rt.......	0	0	0	0	?
{ Lft......	—	—	—	—	—
Bermuda e........ { Rt.......	0	0	0	0	9, 11, 13, 15, 17, 19, 21
{ Lft......	0	0	0	0	9, 11, 13, 15, 17, 19, 21
France............ { Rt.......	0	0	0	0	11, 13, 15, 19, 23, 25
{ Lft......	0	0	0	0+1	10, 12, 14, 16, 18, 20, 23, 24
Salem............ { Rt.......	0	0	0	1	12, 14, 16, 17, 19, 21, 23, 25, 27
{ Lft......	—	—	—	—	—
Boston b.......... { Rt.......	0	0	0	0	7, 9, 11, 13, 15, 17, 19, 21, 23, 25
{ Lft......	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 24, 26
Boston d.......... { Rt.......	—	—	—	—	—
{ Lft......	0	0	0	0	11, 13, 15, 17, 19—21
Beaufort.......... { Rt.......	0	0	0	0	?
{ Lft......	0	0	0	0	?
Texas............. { Rt.......	0	0	0	0	10, 12, 14, 16, 18, 20, 22, 24, 26
{ Lft......	0	0	0	0	12, 14, 18, 20, 22, 24, 26
Washington....... { Rt.......	—	—	—	—	—
{ Lft......	—	—	—	—	—

TABLE 6A.

SPINULES OF FEMUR AND TIBIA OF LEG IV.

		FEMUR				TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a Rt.	0	0	0	0	4+1	0	0	7	1	7
Bermuda a Lft.	0	0	0	0	3	0	0	4	2	4+1
Bermuda c Rt.	0	0	0	0	0	0	4	0	0	0
Bermuda c Lft.	—	—	—	—	—	—	—	.	—	—
Bermuda e Rt.	0	0	0	0	4	0	0	4	0	0+1
Bermuda e Lft.	—	—	—	—	—	—	—	—	—	—
France Rt.	—	—	—	—	—	—	—	—	—	—
France Lft.	0	0	0	0	6+1	0	0	3	5	4+1
Salem Rt.	0	0	0	0	5+1	0	0	5	5	3
Salem Lft.	—	—	—	—	—	—	—	—	—	—
Boston b. Rt.	—	—	—	—	—	—	—	—	—	—
Boston b. Lft.	0	0	0	0	7+1	0	0	2	5	5+1
Boston d. Rt.	0	0	0	0	4	0	0	4	4	3+1
Boston d. Lft.	0	0	0	0	5	0	0	2	4	5+1
Beaufort Rt.	0	4	0	0	0+1	0	0	5	6	4+1
Beaufort Lft.	0	0	0	4	0	0	0	6	4	4+1
Texas Rt.	0	0	0	0	4+1	0	0	5	4	3+1
Texas Lft.	0	0	0	0	5+1	0	0	3	0	4+1
Washington Rt.	—	—	—	—	—	—	—	—	—	—
Washington Lft.	0	1	0	0	3	0	0	0	1	3

TABLE 6B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG IV.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a Rt	0	0	3	0	10, 15, 20
Bermuda a Lft	0	0	0	0	12, 14—16, 18—20, 22, 24
Bermuda c Rt	0	. 0	0	0	9, 11, 13, 15, 17
Bermuda c Lft	—	—	—	—	—
Bermuda e Rt	0	0	0	0	11, 13, 15, 17, 19, 21
Bermuda e Lft	—	—	—	—	—
France Rt					
France Lft	0	0	2	0	16, 18, 19, 21
Salem Rt	0	0	0	0	16, 18, 20, 22, 24
Salem Lft	—	—	—	—	—
Boston b Rt	—	—	—	—	—
Boston b Lft	0	0	3	0	7, 11—13, 15, 17, 19, 21, 23
Boston d Rt	0	0	0	0	9, 11, 13, 15, 17, 19, 21, 23, 25
Boston d Lft	0	0	0	0	9, 11, 13, 15, 17, 19, 21
Beaufort Rt	0	0	0	0	?
Beaufort Lft	0	0	0	0	10, 12, 14, 16, 18
Texas Rt	0	0	0	0	11, 13, 15, 17, 19, 21, 23, 25
Texas Lft	0	0	0	0	10, 12, 14, 16, 18, 20—22, 24, 26
Washington Rt	—	—	—	—	—
Washington Lft	0	0	0	0	—

TABLE 7A.

SPINULES OF FEMUR AND TIBIA OF LEG V.

		FEMUR				TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a { Rt.	0	0	0	0	6	0	0	6	4	7
Lft.	0	0	0	0	4	0	0	5	4	5+1
Bermuda c { Rt.	0	4	0	0	0	0	0	6	3	4+1
Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	0	0	0	0	3+1	0	0	3	1	2+1
France..... { Rt.	0	0	0	0	5+2	0	0	4	5	4+1
Lft.	—	—	—	—	—	—	—	—	—	—
Salem..... { Rt.	0	0	0	0	5+1	0	0	5	7	5
Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.. { Rt.	0	0	0	0	8+1	0	0	4	7	5+1
Lft.	0	0	0	0	7+3	0	0	8	8	7+1
Boston d.. { Rt.	0	0	0	0	5+1	0	0	6	5	5+1
Lft.	0	0	0	0	6+3	0	0	3	3	3+1
Beaufort... { Rt.	0	0	0	0	4+2	2	0	8	0	5+1
Lft.	0	0	0	0	5+1	2	0	5	6	3+1
Texas...... { Rt.	0	0	0	0	5+1	0	0	7	3+1	5+1
Lft.	0	0	0	0	4+1	0	0	7	7	6+1
Wash- { Rt.	—	—	—	—	—	—	—	—	—	—
ington { Lft.	0	0	0	0	3+2	0	0	3	0	4+1

TABLE 7B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG V.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a........ { Rt.......	1	0	6	2	9, 10, 14, 15, 17, 20—22
Lft......	0	0	9	1	10, 12, 14, 16, 18, 24
Bermuda c........ { Rt.......	0	0	0	0	?
Lft......	—	—	—	—	—
Bermuda e........ { Rt.......	—	—	—	—	—
Lft......	0	0	0	0	9, 11, 13, 15, 17, 19, 21
France............ { Rt.......	0	0	5	0	12, 14, 18, 20, 22, 24
Lft......	—	—	—	—	—
Salem............ { Rt.......	0	0	0	0	16, 18, 20, 22, 24
Lft......	—	—	—	—	—
Boston b.......... { Rt.......	0	0	0	2	12, 14, 16, 18, 22, 24
Lft......	4	0	9	2	12, 16, 18—20, 22, 24
Boston d.......... { Rt.......	0	0	0	0	9, 11, 13, 15, 17, 19, 21
Lft......	0	0	2	1	16, 18—22
Beaufort.......... { Rt.......	1	0	7	4+2+1	12, 14, 16, 18, 20, 22
Lft......	0	0	5	3+1	11, 15, 17, 19, 21, 23
Texas............. { Rt.......	2	0	4	1	14, 18, 20, 22
Lft......	0	0	6	0	12, 16, 18, 20, 22, 24, 26
Washington....... { Rt.......	—	—	—	—	—
Lft......	0	0	3	—	14, 16, 18, 20, 22

TABLE 8A.
SPINULES OF FEMUR AND TIBIA OF LEG VI.

		FEMUR				TIBIA				
		d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a	Rt.	0	0	0	1	0	1	0	8	5	7
	Lft.	0	0	0	10	5+3	0	5	0	0	6+1
Bermuda c	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	7	0	0	0+5	7	0	12	0	6+1
Bermuda e	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	0	0	0	4+2	0	0	5	2	2+1
France	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	0	0	0	4+3	0	0	7	7	4+1
Salem	Rt.	—	—	—	0	7+1	0	—	—	5	5+1
	Lft.	—	—	—	—	—	—	0	0	—	—
Boston b.	Rt.	0	0	0	0	7+2	1	1	7	8+1	4+1
	Lft.	0	0	0	0	7+1	1	6	8	6+1	7+1
Boston d.	Rt.	0	0	0	0	5+1	2	2	5	3	6+1
	Lft.	0	0	0	0	3+3	1	0	6	5	5+1
Beaufort	Rt.	0	0	0	0	3+1	3	1	7	6	4+1
	Lft.	0	0	0	0	3+1	2	1	6	4	4+1
Texas	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Wash- ington	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	2	0	0	4+1	0	0	5	1	5+1

TABLE 8B.
SPINULES OF METATARSUS AND TARSUS I AND PEGS OF METATARSUS OF LEG VI.

		METATARSUS			TARSUS I	TARSUS II
		d.	v.	cd.		
Bermuda a	Rt	9	0	15	4+0	9, 12, 13
	Lft	7	0	14	3+1	0
Bermuda c	Rt	—	—	—	—	—
	Lft	13	0	16	8+1+1+1	?
Bermuda e	Rt	—	—	—	—	—
	Lft	0	0	5	0	9, 11, 13, 15, 17, 19, 20
France	Rt	—	—	—	—	—
	Lft	4	0	11	6+2+2+2	16, 18, 20, 22
Salem	Rt	0	0+1	11	4	14, 16, 20, 22
	Lft	—	—	—	—	—
Boston b	Rt	0	0	0	1	11, 15, 17, 19, 21, 23
	Lft	4	0	9	5	12, 14, 16, 18, 22, 24
Boston d	Rt	5	0	9	2	20, 22, 24
	Lft	7	0	9	3+1	15, 17, 19, 21
Beaufort	Rt	6	1	11	4+2+1	10, 12—14, 16, 18, 20, 22
	Lft	7	0	9	6+2+2+1	?
Texas	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Washington	Rt	—	—	—	—	—
	Lft	5	0	6	0	18

TABLE 9A.
SPINULES OF FEMUR AND TIBIA OF LEG VII.

		FEMUR				TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a Rt.					4+4	5	5	10	5	7
Lft.	0	5	0	0	3+3	5	5	9	1	7
Bermuda c Rt.	0	1	0	0	0+3	2	0	5	0	4+1
Lft.	0	2	0	3	0+3	3	0	8	4	6+1
Bermuda e Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
France Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	0	1	0	0	2+4	3	1	7	7	4+1
Salem Rt.	?	?	?	?	?	7	?	?	?	?
Lft.	—	—	—	—	—	—	—	—	—	—
Boston b. Rt.	0	0	0	0	5+4	2	3	7	9+1	5
Lft.	0	0	0	0	6+3	4	1	9	9	7+1
Boston d. Rt.	0	2	0	0	3+3	4	3	7	5	5+1
Lft.	0	3	0	0	4+5	0	4	7	6	5+1
Beaufort. Rt.	0	0	0	0	2+3	5	1	7	6	5+1
Lft.	—	—	—	—	—	—	—	—	—	—
Texas Rt.	0	3	0	0	4+4	2	4	8	8	7+1
Lft.	0	3	0	0	4+5	3	2	8	7	6+1
Wash-ington Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—

TABLE 9B.
SPINULES OF METATARSUS AND TARSUS I AND PEGS OF METATARSUS II OF LEG VII.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a Rt.	14	2	16	13+2+1+1	0
Lft.	17	0	15	10+2+1+1	0
Bermuda c Rt.	9	0	12	6+2+1+1	15, 17, 19
Lft.	7	4	10	1+1	—
Bermuda e Rt.	—	—	—	—	—
Lft.	—	—	—	—	—
France Rt.	—	—	—	—	—
Lft.	8	0	13	14+1+2+2	0
Salem Rt.	10	0	?	5+0	18, 20
Lft.	—	—	—	—	—
Boston b Rt.	11	1	11	5+2	—
Lft.	11	0	18	8+1+1	17, 19, 21, 23
Boston d Rt.	10	0	15	6+1	20, 22, 24
Lft.	12	0	11	6+1	16, 22
Beaufort Rt.	14	1	15	6+2+2+1	—
Lft.	—	—	—	—	—
Texas Rt.	11	0	11	6+2	18, 20, 22, 24
Lft.	9	0	15	6+1	16, 18, 20, 24
Washington Rt.	—	—	—	—	—
Lft.	—	—	—	—	—

TABLE 10A.
SPINULES OF FEMUR AND TIBIA OF LEG VIII.

	FEMUR					TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a { Rt.	0	4	0	0+4	0	7	6	9	0	7
Lft.	0	4	0	1+3	0	8	5	7	4+1	7
Bermuda c { Rt.	0	6	0	0	0+4	6	4	9	3	6+1
Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e { Rt.	0	3	0	0+1	2+3	3	0	6	0	4+1
Lft.	—	—	—	—	—	—	—	—	—	—
France { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	0	7	0	0	0+4	9	3	12	6	7
Salem { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
Boston b { Rt.	0	5	0	0	1+3	4	2	7	9	6+1
Lft.	0	3	0	0	5+4	5	4	9	9+2	6+1
Boston d { Rt.	0	7	0	0	1+3	5	5	6	3	5+1
Lft.	—	—	—	—	—	—	—	—	—	—
Beaufort { Rt.	0	1	0	0	2+3	6	4	9	3	6+1
Lft.	—	—	—	—	—	—	—	—	—	—
Texas { Rt.	0	4	0	0	3+4	5	5	0	0	7+1
Lft.	0	6	0	0	1+5	4	4	8	8	6+1
Wash- { Rt.	—	—	—	—	—	—	—	—	—	—
ington Lft.	—	—	—	—	—	—	—	—	—	—

TABLE 10B.
SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG VIII.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a { Rt.	18	2	19	13+3+2+1+1	0
Lft.	17	4	21	12+2+1+1	. 20, 18
Bermuda c { Rt.	19	3	17	14+1+1+1+1	22, 24
Lft.	—	—	—	—	—
Bermuda e { Rt.	9	0	12	1	12, 14, 16, 18, 20
Lft.	—	—	—	—	—
France { Rt.	—	—	—	—	—
Lft.	17	5	19	17+3+3+2	0
Salem { Rt.	—	—	—	—	—
Lft.	—	—	—	—	—
Boston b { Rt.	14	1	15	11+1+1	15, 21, 23
Lft.	12	0	20	10+1+1	17, 19, 21, 23
Boston d { Rt.	17	1	?	9+1+1	15, 17, 19, 21
Lft.	—	—	—	—	—
Beaufort { Rt.	19	3	17	9+2+2+2+2+1	0
Lft.	—	—	—	—	—
Texas { Rt.	13	2	16	11+2+1	18, 20, 22, 24
Lft.	16	0	15	8+1	18, 20, 22
Washington { Rt.	—	—	—	—	—
Lft.	—	—	—	—	—

TABLE 11A.

SPINULES OF FEMUR AND TIBIA OF LEG IX.

		FEMUR					TIBIA				
		d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a	Rt.	0	7	0	0	1+5	7	6	10	2	8
	Lft.	0	8	0	0	2+3	12	7	8	2+3	12
Bermuda c	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	4	0	0	0+4	7	0	9	0	5+1
Bermuda e	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
France	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Salem	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Boston b	Rt.	0	6	0	0	3+4	8	6	9	8+3	7+1
	Lft.	0	6	0	0	5+4	6	5	10	8+4	6+1
Boston d	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Beaufort	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Texas	Rt.	0	6	0	0	0+4	7	7	10	6	8+1
	Lft.	—	—	—	—	—	—	—	—	—	—
Wash- ington	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—

TABLE 11B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG IX.

		METATARSUS			TARSUS I	TARSUS II
		d.	v.	cd.		
Bermuda a	Rt	23	5	21	17+3+1+1+1	0
	Lft	23	9	26	14+3+1+1+1	0
Bermuda c	Rt	—	—	—	—	—
	Lft	15	1	19	16+v+v+o+1	19
Bermuda e	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
France	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Salem	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Boston b	Rt	17	3	20	13+1+1	0
	Lft	20	2	19	15+1+1	23
Boston d	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Beaufort	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Texas	Rt	—	—	—	—	—
	Lft	17	4	21	11+2+1+1	0
Washington	Rt	—	—	—	—	—
	Lft	—	—	—	—	—

TABLE 12A.

SPINULES OF FEMUR AND TIBIA OF LEG X.

		FEMUR					TIBIA				
		d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a	Rt.	0	5	0	0	0+3	8	7	10	1	8
	Lft.	0	6	0	0	0+4	12	8	11	3+3	7
Bermuda c	Rt.	0	5	0	0	0+3	12	8	15	1+2	9+1
	Lft.	0	8	0	0	0+4	7	0	9	0	5+1
Bermuda e	Rt.	0	6	0	0	0+2	0	3	8	0	5+1
	Lft.	—	—	—	—	—	—	—	—	—	—
France	Rt.	0	7	0	0	0+3	7	4	9	0+3	4+1
	Lft.	0	4	0	0	0+3	8	5	7	2	3+1
Salem	Rt.	0	9	0	2	0+4	10	6	10	6+2	8
	Lft.	—	—	—	—	—	—	—	—	—	—
Boston b	Rt.	0	8	0	0	1+4	8	8	12	7+4	6+1
	Lft.	0	6	0	0	0+3	10	8	11	6+4	6+1
Boston d	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Beaufort	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Texas	Rt.	0	9	0	0	1+3	9	8	9	8+2	7+2
	Lft.	0	6	1	0	0+4	9	7	8	9	8+1
Wash- ington	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	8	0	0	0+2	8	6	9	0	5+1

TABLE 12B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG X.

		METATARSUS			TARSUS I	TARSUS II
		d.	v.	cd.		
Bermuda a	Rt	28	8	27	20+4+1+1+1+1	0
	Lft	20	6	23	20+3+2+2+0+1	0
Bermuda c	Rt	19	8	20	14+3+2+1+1	0
	Lft	15	1	19	14+3+1+0+1	0
Bermuda e	Rt	28	0	16	8+1+0	17, 19
	Lft	—	—	—	—	—
France	Rt	16	4	22	16+3+3+1+2+1	0
	Lft	18	3	23	16+3+3+2	0
Salem	Rt	23	5	20	14+2+1+2+1	0
	Lft	—	—	—	—	—
Boston b	Rt	22	4	19	18+2+1+1+1	0
	Lft	25	5	22	15+2+1+1	0
Boston d	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Beaufort	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Texas	Rt	18	6	20	17+3+1+1	0
	Lft	18	6	21	20+2+2+2	0
Washington	Rt	—	—	—	—	—
	Lft	19	4	25	18+2+1+1+1+1	0

TABLE 13A.

SPINULES OF FEMUR AND TIBIA OF LEG XI.

	FEMUR					TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a Rt.	0	7	0	0	0+6	14	8	12	1	8
Bermuda a Lft.	0	6	0	0	0+4	10	8	12	0	9
Bermuda c Rt.	—	—	—	—	—	—	—	—	—	—
Bermuda c Lft.	0	12	0	0	0+4	19	9	15	3+2	9+1
Bermuda e Rt.	0	7	0	0	0+3	7	4	8	0	6+1
Bermuda e Lft.	0	7	0	0+1	0+1	10	6	8	0	5+1
France Rt.	0	8	0	0	0+4	10	6	10	0	4+1
France Lft.	0	5	0	0	0+5	9	6	9	2	4+1
Salem Rt.	0	8	0	1	0+4	14	8	10	4+2	7
Salem Lft.	—	—	—	—	—	—	—	—	—	—
Boston b Rt.	0	6	0	0	0+3	11	7	13	6+4	7+2
Boston b Lft.	0	6	0	0	0+3	8	8	12	4+4	7+1
Boston d. Rt.	—	—	—	—	—	—	—	—	—	—
Boston d. Lft.	—	—	—	—	—	—	—	—	—	—
Beaufort Rt.	0	8	0	0	0+4	12	9	11	3+2	8+1
Beaufort Lft.	—	—	—	—	—	—	—	—	—	—
Texas Rt.	0	8	0	0	1+4	7	10	10	6+4	8+1
Texas Lft.	—	—	—	—	—	—	—	—	—	—
Washington Rt.	—	—	—	—	—	—	—	—	—	—
Washington Lft.	0	5	0	0	1+2	9	7	11	0	7+1

TABLE 13B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS I OF LEG XI.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a Rt	33	11	26	26+3+2+1+1	0
Bermuda a Lft	30	11	27	24+4+2+2+1	—
Bermuda c Rt	—	—	—	—	—
Bermuda c Lft	—	—	—	—	—
Bermuda e Rt	16	1	13	6+0	0
Bermuda e Lft	16	1	17	9+1	0
France Rt	19	6	27	22+3+2+2+0+1+2	0
France Lft	25	4	26	16+3+3+3+2+1	0
Salem Rt	28	6	24	17+2+2+1	0
Salem Lft	28	8	24	20+1+2+2	0
Boston b Rt	25	9	25	20+3+1+1	0
Boston b Lft	24	8	29	15+2+1+1	0
Boston d Rt	—	—	—	—	—
Boston d Lft	—	—	—	—	—
Beaufort Rt	29	10	26	28+4+3+3+2+1	0
Beaufort Lft	—	—	—	—	—
Texas Rt	25	9	23	20+2+2	0
Texas Lft	—	—	—	—	—
Washington Rt	—	—	—	—	—
Washington Lft	26	5	24	24+4+2+1+1+1+1	0

<p style="text-align:center">TABLE 14A.</p>
<p style="text-align:center">SPINULES OF FEMUR AND TIBIA OF LEG XII.</p>

	FEMUR					TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a { Rt.	0	9	0	0	0+6	16	13	14	1	12
{ Lft.	0	8	0	2	0+5	12	11	13	2+4	8
Bermuda c { Rt.	0	5	0	0	0	14	10	14	0+3	8+1
{ Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e { Rt.	—	—	—	—	—	—	—	—	—	—
{ Lft.	—	—	—	—	—	—	—	—	—	—
France..... { Rt.	—	—	—	—	—	—	—	—	—	—
{ Lft.	—	—	—	—	—	—	—	—	—	—
Salem..... { Rt.	0	1	1	2	0+5	15	12	15	6+4	10
{ Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.. { Rt.	0	7	0	0	0+3	12	11	15	0+4	9+1
{ Lft.	0	8	0	0	0+5	13	9	13	5+3	7+1
Beaufort... { Rt.	—	—	—	—	—	—	—	—	—	—
{ Lft.	—	—	—	—	—	—	—	—	—	—
Texas...... { Rt.	—	—	—	—	—	—	—	—	—	—
{ Lft.	—	—	—	—	—	—	—	—	—	—
Wash- { Rt.	—	—	—	—	—	—	—	—	—	—
ington { Lft.	—	—	—	—	—	—	—	—	—	—

<p style="text-align:center">TABLE 14B.</p>
<p style="text-align:center">SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG XII.</p>

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a........ { Rt..	34	15	33	30+3+2+2+1+1	0
{ Lft.	28	16	29	28+2+3+3+3+1	0
Bermuda c........ { Rt.......	28	10	22	22+5+2+2+2+2+1	0
{ Lft......	—	—	—	—	—
Bermuda e........ { Rt	—	—	—	—	—
{ Lft......	19	1	13	11+0+1	0
France. ....{ Rt.......	—	—	—	—	—
{ Lft......	—	—	—	—	—
Salem. ....{ Rt.......	30	7	29	26+2+2	0
{ Lft......	—	—	—	—	—
Boston b. . . . . . { Rt	27	6	31	21+3+3+1+2	0
{ Lft......	30	8	30	22+3+2+2+1+1	0
Beaufort.......... { Rt.......	—	—	—	—	—
{ Lft......	—	—	—	—	—
Texas ... .{ Rt.......	—	—	—	—	—
{ Lft......	—	—	—	—	—
Washington....... { Rt	—	—	—	—	—
{ Lft .	—	—	—	—	—

TABLE 15A.

SPINULES OF FEMUR AND TIBIA OF LEG XIII.

		FEMUR					TIBIA				
		d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a	Rt.	0	12	0	4	0+7	21	13	15	0	14
	Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda c	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
France	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	7	0	0	2+4	16	10	14	0+2	8+1
Salem	Rt.	0	10	0	5	2+6	19	14	18	12+4	14
	Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.	Rt.	0	8	0	0	0+5	12	13	16	4+4	8+1
	Lft.	0	8	0	0	2+5	15	10	14	5+4	9+1
Beaufort	Rt.	--	—	—	—	—	—	—	—	—	—
	Lft.	—	—	—	—	—	—	—	—	—	—
Texas	Rt.	0	9	0	0	1+7	18	14	13	7+4	12+1
	Lft.	0	12	2	2	1+5	15	15	15	13+2	11+1
Washington	Rt.	—	—	—	—	—	—	—	—	—	—
	Lft.	0	5	0	0	1+2	12	9	6	0+3	5+1

TABLE 15B.

SPINULES OF METATARSUS AND TARSUS I AND PEGS OF TARSUS II OF LEG XIII.

		METATARSUS			TARSUS I	TARSUS II
		d.	v.	cd.		
Bermuda a	Rt	36	16	33	35+4+4+2+2+1	—
	Lft	—	—	—	—	—
Bermuda c	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Bermuda e	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
France	Rt	—	—	—	—	—
	Lft	20	12	30	25+3+2+3+2+1	0
Salem	Rt	30	12	28	29+3+1	0
	Lft	—	—	—	—	—
Boston b	Rt	28	9	30	22+3+3+2+1	0
	Lft	33	8	31	25+3+2+1	0
Beaufort	Rt	—	—	—	—	—
	Lft	—	—	—	—	—
Texas	Rt	25	14	29	26+2+3+1+1	0
	Lft	25	13	33	26+4+3+1+1	0
Washington	Rt	—	—	—	—	—
	Lft	28	7	29	22+5+5+2+0+1	0

TABLE 16A.

SPINULES OF FEMUR AND TIBIA OF LEG XIV.

		FEMUR				TIBIA				
	d.	v.	cd.	cm.	cv.	d.	v.	cd.	cm.	cv.
Bermuda a { Rt.	0	4	16	6	14+7	24	14	19	3	13
Lft.	0	12	8	17	2+6	21	13	17	4+4	14
Bermuda c { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
Bermuda e { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
France..... { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	0	11	0	3	13+4	16	12	13	0+2	11+1
Salem...... { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
Boston b.. Rt.	0	10	6	0	13+4	19	15	19	9+4	13+4
Lft.	0	10	6	0	10+6	15	10	14	5+4	9+1
Beaufort... { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	—	—	—	—	—	—	—	—	—	—
Texas...... { Rt.	—	—	—	—	—	—	—	—	—	—
Lft.	0	10	7	0	15+6	19	14	18	11+5	12+1
Wash- { Rt.	—	—	—	—	—	—	—	—	—	—
ington { Lft.	—	—	—	—	—	—	—	—	—	—

TABLE 16B.

SPINULES OF METATARSUS AND TARSUS I OF LEG XIV.

	METATARSUS			TARSUS I	TARSUS II
	d.	v.	cd.		
Bermuda a........ { Rt......	39	18	35	30+4+2+2+2+2+2	0
Lft......	38	20	33	?	0
Bermuda c........ { Rt......	—	—	—	—	—
Lft......	—	—	—	—	—
Bermuda e........ { Rt......	—	—	—	—	—
Lft......	—	—	—	—	—
France............ { Rt......	—	—	—	—	—
Lft......	28	9	30	26+3+3+3+2+1	0
Salem............ { Rt......	—	—	—	—	—
Lft......	—	—	—	—	—
Boston b.......... { Rt......	33	15	28	24+2+2+1	0
Lft......	32	10	31	25+3+0+1+1	0
Beaufort.......... { Rt......	—	—	—	—	—
Lft......	—	—	—	—	—
Texas............ { Rt......	—	—	—	—	—
Lft......	34	13	31	27+3+2+1	0
Washington....... { Rt......	—	—	—	—	—
Lft......	—	—	—	—	—

EXPLANATION OF PLATE XXIX

Hydroschendyla submarina (Grube).   Male

Fig. 1.   Cephalic plate.
Fig. 2.   Distal portion of antenna in outline.
Fig. 3.   Tip of distal article of antenna more highly magnified.
Fig. 4.   Anterior border of prosternum with right prehensor.
Fig. 5.   Caudal end with anal legs, ventral view.

Lithobius provocator Pocock.

Fig. 6.   Anterior border of prosternum showing position of spine, with tooth interpolated in diastema of right half.
Fig. 7.   The same, with tooth interpolated in diastema on both sides and an extra ectal tooth on left half.
Fig. 8.   Basal joint of female gonopod showing form of basal spines.